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ABSTRACT

Part of an eight-module, graduate level, competency-based curriculum to prepare specialists in vocational education curriculum, this module provides information, activities, and experiences to enable the learner to select, design, produce, and disseminate instructional materials. The strategy used takes the learner in a sequence of five performance objectives through a process that culminates in the design, preparation, and dissemination model for new instructional materials. Objective 1 provides familiarity with the resources and communication network available to vocational educators. The second objective is concerned with criteria for evaluation and selection of instructional materials. In performance objective 3, the learner focuses on the process of dissemination. Several dissemination techniques are presented, and the learner develops a model after completing the learning activities. The project culminates in objective 4 with the development and preparation of learner-designed instructional materials. Each of the performance objectives is followed by several related learning activities. Pretest, posttest, and glossary of terms complete the module. (Author/NJ)

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ED133557

CURRICULUM

for

GRADUATE PROGRAM

to Prepare

VOCATIONAL EDUCATION CURRICULUM SPECIALISTS

MODULE 5

Preparing Instructional Materials

by the

Department of Education

Washington State University

Pullman, Washington 99163

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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NE 009 626

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The content of this module was used as a part of a graduate course in Vocational Technical Education at Washington State University. The effectiveness of the curriculum material was evaluated on the basis of:

1. Performance data from pre and post tests and other evaluative techniques used in the course.
2. Use of a Curriculum Evaluation Questionnaire which was developed, administered and summarized by the third party evaluator, Northwest Regional Education Laboratory. This questionnaire provided a faculty and student rating of: individualization of the curriculum, choice of learning settings and quality of curriculum.

Revisions in final drafts utilized these evaluations.

COMPETENCY

THE VOCATIONAL EDUCATION CURRICULUM SPECIALIST WILL BE ABLE TO SELECT, DESIGN AND PREPARE INSTRUCTIONAL MATERIALS APPROPRIATE FOR MEETING ESTABLISHED GOALS AND OBJECTIVES AND TO ASSIST THE CURRICULUM DEVELOPMENT TEAM IN THIS PROCESS.

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INTRODUCTION

Purpose

The purpose of this module is to provide information, real experiences and simulated ones, as well as other planned activities that will enable the Vocational Education Curriculum Specialist (VECS) to select, design, produce and disseminate instructional materials. The VECS should also be able to assist the curriculum development team in implementing the process. The processes utilized and the materials developed will be appropriate for meeting program goals and objectives at different levels of instruction and in a variety of learning situations.

Rationale

The VECS will provide leadership in the promotion of teaching toward more effective learning. Therefore, it is vital that they develop basic skills necessary to select, design, produce and disseminate instructional materials, and assist others in this process. With the process in mind, this module was designed to allow the learner to acquire those basic skills necessary to acquire the competency. Each performance objective takes the learner one step closer to the actual selection, preparation, and dissemination of instructional materials.

Assumptions

It will be assumed that the learner can:

1. develop appropriate program goals, instructional objectives, and learning activities, and can assist the curriculum development team in this development, and
2. identify and use appropriate instructional strategies and assist the curriculum development team in the use of appropriate strategies.

Overview

The actual preparation or selection of instructional materials is the culmination of intensive research and background work on the part of the VECS. With so much work and expense at stake, it is only logical that the VECS would want the materials to be of the best quality, usable, and the dissemination complete. These were the basic concepts that went into the preparation of this module.

The strategy used to enable the learner to acquire the competency is an ongoing project referred to as THE PROJECT, selected by the learner in the first performance objective. Each performance objective will build on the preceding one to allow for the completion of the self-designed project. The culmination of the process is the design, preparation, and a dissemination model for new instructional materials.

Comments on Performance Objectives as Developed

THE PROJECT is discussed on page 10 . THE PROJECT will be the mode for developing the learner's expertise in preparing instructional materials. The learner will be given an opportunity to study the material presented and prepare a usable product.

Performance Objective 1 will give the learner an opportunity to become familiar with, and use the vast resources available to vocational educators. The communication network that has been established by state and federal governments, industry, and colleges and universities will become a tool for potential curriculum specialists to use in their work.

The criteria used in the evaluation and selection of instructional materials are the thrust of Performance Objective 2. The learner will have an opportunity to use readability formulas, style manuals, and assessment instruments that have proven successful in selecting appropriate instructional materials.

In Performance Objective 3, the learner will focus on the process of

dissemination. Several dissemination techniques are presented and the learners are asked to develop their own models after completing the learning activities.

Performance Objective 4 shifts the emphasis of the module to the development of new instructional materials. THE PROJECT culminates in Performance Objective 4 with the development and preparation of learner-designed instructional materials.

In Performance Objective 5, the learners will have an opportunity to have their project evaluated by a peer. The instrument used will be familiar since it is used in Performance Objective 2.

MODULE PREREQUISITES

In order for the learner to begin work on this module, the following prerequisites must be met:

I. Background Coursework

A. Graduate course in curriculum design

B. Graduate course in instructional strategies

C. A course in preparation and utilization of audiovisual materials

D. Background coursework in vocational education

E. Ability to write and speak concisely and effectively

II. Experience

A. Teaching experience in one or more vocational areas

B. Work experience in a field outside of education

C. Previous experience in course design and evaluation

Pretest and Posttest

1. As a Vocational Education Curriculum Specialist what information sources would be available to you for the most up-to-date instructional materials related to those areas under your supervision? List as many as possible.

2. "Ink adheres to image on plate; transferred to a blanket and then to paper." This describes a process known as:

   A. Letterpress.
   B. Offset.
   C. Spirit.
   D. None of the above.

3. When selecting instructional materials, which of the following is <u>not</u> a necessary consideration?

   A. Bias
   B. Readability
   C. Visual fluency
   D. Structured fluency

4. Dissemination may be considered to be:

   A. Mailings.
   B. Cataloging.
   C. Summer workshops.
   D. A and C.
   E. All of the above.

5. Which type style is most legible?

   A. Serif
   B. Sans serif
   C. Bordered serif
   D. Partial serif

6. Substantive editing refers to:

   A. Editing graphic design.
   B. Editing content and grammar.
   C. Copy editing.
   D. None of the above.

7. Which of these words is incorrect or misused?

   A. Enthuse
   B. Unloosen
   C. Irregardless
   D. A and B
   E. All of the above

8. Which of the following is not a widely used readability formula?

   A. Fry's Readability Formula
   B. Gunning's Readability Formula
   C. Koffka's Readability Formula
   D. Flesch's Readability Formula

9. Pictures and illustrations may be reprinted without permission if they are in:

   A. U. S. Government publications.
   B. Consumable instructional materials.
   C. Commercially produced filmloops.
   D. A and B.
   E. None of the above.

10. Pica type has:

   A. 12 characters to the inch.
   B. 10 characters to the inch.
   C. 8 characters to the inch.
   D. 6 characters to the inch.

11. Which of the following is not commonly used to determine reading levels?

   A. Sentence length per 100 words
   B. Number of sentences per 100 words
   C. Number of syllables per 100 words
   D. Number of one syllable words per 100 words

12. Materials that have a perfect binding are:

   A. Stapled.
   B. Shrink wrapped.
   C. Stitched.
   D. A and C.
   E. None of the above.

13. Written permission is not required to reprint material that is:

   A. In the public domain.
   B. In the second printing.
   C. In the ERIC system.
   D. Out of print.

Pretest and Posttest Key

1. This is only a partial listing and can be added to by the instructor:

   Superintendent of Documents
   U.S.O.E.
   U.S. Department of Labor
   National Advisory Council on Vocational Education
   State Agencies
   Educational Resources Information Center (ERIC)
   Abstracts of Research and Related Materials in Vocational and Technical Education (ARM)
   Abstracts of Instructional Materials in Vocational and Technical Education (AIM)
   Research in Education (RIE)
   Direct Access to Reference Information: A Xerox Service (DATRIX)
   The Center for Research and Leadership Development for Vocational and Technical Education, Ohio State University
   American Vocational Association
   American Education Research Association
   Universities
   Trade associations
   Foundations, Institutes, and Societies

2. B
3. D
4. D
5. A
6. B
7. E
8. C
9. A
10. B
11. A
12. E
13. A

GLOSSARY OF TERMS

* COPYRIGHT: the purpose of copyright is to protect certain kinds of property, among them, literary property. The protection that the law gives is to reserve to the author or proprietor, the exclusive right to make, or have made, copies of his work. Unpublished material is protected under common law copyright, published material under statutory copyright.

** CRITERION (pl., criteria): a standard, norm, or judgment selected as a basis for quantitative and qualitative comparison.

** CURRICULUM DESIGN: (1) the way in which the component parts of the curriculum have been arranged in order to facilitate learning and teaching and to enable schools to formulate feasible daily and weekly schedules; (2) a process of conceptualizing a set of systematic relationships between pupils, teacher behavior, materials, content, time, and instructional outcomes; a guide for instruction describing a specific arrangement of all factors relating to instructional practice toward a specific outcome.

** CURRICULUM DEVELOPMENT: a task of supervision directed toward designing or redesigning the guidelines for instruction; includes development of specifications indicating what is to be taught, by whom, when, where, and in what sequence or pattern.

** DISSEMINATION OF INFORMATION, SELECTIVE: an arrangement designed to keep the various members of an organization fully informed in their areas of interest by screening all incoming documents and automatically sending to each of the members notice of all material relating to the field.

* EDITOR: (1) one who selects and prepares for publication the work of another, as W. H. Auden and Norman Holmes Pearsons, eds., Romantic Poets: Blake to Poe. (2) In a book-publishing house, one who procures manuscripts for publication (a procurement or sponsoring editor--at the University of Chicago Press, a house editor) or one who prepares manuscripts for publication (a copy editor if his duties are confined to routine correction and imposition of house style; a manuscript editor if they include substantive revision). (3) In large publishing houses often an individual exercising purely executive functions.

** INSTRUCTIONAL MATERIAL: any device with instructional content or function that is used for teaching purposes, including books, textbooks, supplementary reading materials, audiovisual and other sensory materials, scripts for radio or television instruction, programs for computermanaged instruction, instruction sheets, and packaged sets of materials for construction or manipulation.

** READABILITY: the quality of a piece of reading matter that makes it interesting and understandable to those for whom it is written, at whatever level of education experience.

** READABILITY FORMULA: (1) a technique for determining the difficulty of reading materials, generally taking into account vocabulary and sentence length, although additional aspects are included in different formulas; (2) a style of writing, popularized by Rudolph Flesch and imitators, formerly employed to provide easier reading especially for the less educated.

References:

* A Manual of Style. 12th ed. Chicago: The University of Chicago Press, 1969.

** Good, Carter V., ed. Dictionary of Education. 3rd ed. New York: McGraw Hill Book Company, 1973.

PLEASE READ BEFORE PROCEEDING TO PERFORMANCE OBJECTIVE 1

Using the references and information given below, select a project to be known as THE PROJECT, which you will develop in the next five Performance Objectives.

Do the following:

1. Re-read the "Overview" and "Comments on Performance Objectives" on page 2.
2. Select a curriculum development project that you would like to pursue throughout this module. Use as a minimum these two criteria, (1) THE PROJECT should be of interest and value to you, and (2) THE PROJECT should be of such scope that it can be completed in the time allowed for module completion. Here are a few examples:
   - An individualized package for student use in a particular subject matter area.
   - A self-instructional package for teachers containing the latest innovations in a particular subject matter area.
   - Materials that could be used in a workshop setting designed to assist teachers in the improvement of instructional strategies.

Once you have selected THE PROJECT, proceed as follows:

1. Develop the objectives that are to be achieved by THE PROJECT.
2. Proceed to PERFORMANCE OBJECTIVE 1 for further information about sources of instructional materials.

References:

Kemp, Jerrold E. Instructional Design. Belmont, CA: Fearon Publishers, 1971. pp. 3-9.

Mager, Robert F. and Beach, Kenneth M. Jr. Developing Vocational Instruction. Belmont, CA: Fearon Publishers, 1967. pp. v-6.

PERFORMANCE OBJECTIVE 1

Identify sources of instructional materials for use by the vocational teacher.

Vocational Education Curriculum Specialists will be a source for the most up-to-date instructional materials related to those vocational areas under their supervision. In addition, the Vocational Education Curriculum Specialist will be cognizant of the latest research and innovations in the areas of curriculum and instruction in vocational education. An awareness by the curriculum specialist of these materials and procedures is essential to:

1. keep vocational-technical education personnel informed of materials available from many sources, and
2. be a producer of usable, educationally effective, instructional materials.

The first step in this identification process is the collection of instructional materials, research reports, curriculum studies and possible conference proceedings that relate to the project under consideration. To do this, the Vocational Education Curriculum Specialist must be able to use the vast resources of information that are available. In their role as a "manager of resources," Vocational Education Curriculum Specialists must know how to get inside this communication network.

Instructional Objective 1.1

Given sources of information, the learners will compile a list of information sources applicable to their own curriculum planning and development area(s).

Learning Activity 1.1-a

Consult the list of references and from these, compile a list of sources applicable in your particular curriculum planning and development areas. State your reasons for selecting the sources.

What additional sources are you familiar with that might be added to this resources list?

References:

Books in Print: An Author-Title-Series Index to the "Publishers Trade List Annual," 2 vols. New York: R. R. Bowker Company, Annually.

Kemp, Jerrold E. Planning and Producing Audiovisual Materials. 3rd ed. New York: Thomas Y. Crowell Co., 1975. p. 300.

National Trade and Professional Association Directory. Washington, DC: Columbia Book Publishers, Annually.

Mager, Robert F. and Beach, Kenneth M., Jr. Developing Vocational Instruction. Belmont, CA: Fearon Publishers, 1967. pp.80-83.

Stadt, Ronald W., Brittle, Raymond E.; Kenneke, Larry J.; and Nystrom, Dennis C. Managing Career Education Programs. Englewood Cliffs, NJ: Prentice-Hall, Inc., 1973. Chapter 7.

Instructional Objective 1.2

Using the list of information sources developed in Learning Activity 1.1-a and a self-designed curriculum development project, i.e., THE PROJECT, the learner will design a model for collecting the appropriate information from those sources that meet THE PROJECT objectives.

Learning Activity 1.2-a

The model you design will be of your own choosing. Your only guidelines are:

1. Design a model for managing the communications chain for the collection of data needed to meet THE PROJECT objectives.
2. Apply the model toward the collection of the data from the various sources.
3. As the data is received, categorize it into logical units.
4. Proceed to PERFORMANCE OBJECTIVE 2 for information concerning evaluation and selection of instructional materials.

PERFORMANCE OBJECTIVE 2 ●●

Identify, explain, and apply specific criteria used in evaluating and selecting instructional materials for a diversity of vocational technical education student interests and abilities.

The ability to select instructional materials for a diversity of vocational education student interests and abilities has two significant implications:

1. that the Vocational Education Curriculum Specialists can identify the criteria used in evaluating and selecting appropriate instructional materials, and
2. that the Vocational Education Curriculum Specialists can use the same criteria in their development of new instructional materials.

In recent years, the number of materials available for classroom use has increased tremendously. Fortunately for the curriculum specialist, the selection dilemma has been somewhat alleviated by the development of assessment instruments that establish the criteria by which the materials can be evaluated.

Instructional Objective 2.1

Given a list of references and additional information, the learner will be able to explain the concept of readability, describe at least four widely used readability formulas, and score at least four one-hundred word passages using a learner-selected formula.

Learning Activity 2.1-a

Read the following:

1. Chapters 13-15 and "How to Use the Readability Formula" in Flesch's The Art of Readable Writing.
2. Fry's Readability Graph.
3. Additional Readability Formulas.

FRY'S READABILITY GRAPH TO DETERMINE THE READING LEVEL OF MATERIALS

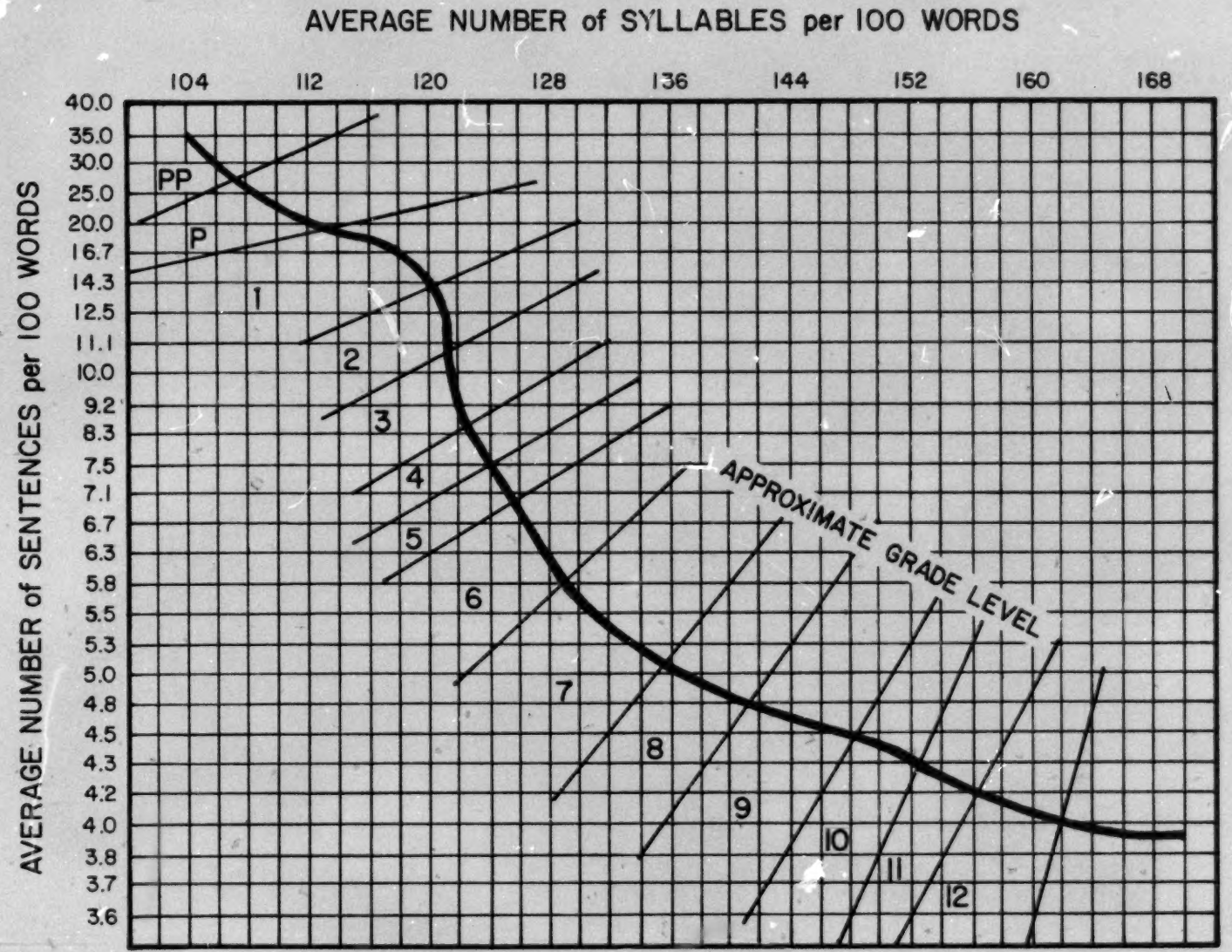
Directions for Using the Readability Graph (on following page)

1. Select three one-hundred-word passages from near the beginning, middle, and end of the book. Skip all proper nouns.
2. Count the total number of sentences in each one-hundred-word passage (estimating to nearest tenth of a sentence). Average these three numbers.
3. Count the total number of syllables in each one-hundred word sample. There is a syllable for each vowel sound; for example: cat(1), blackbird(2), continental(4). Do not be fooled by word size; for example: polio(3), through(1). Endings such as -y, -ed, -el, or -le usually make a syllable, for example: ready(2), bottle(2). You will find it convenient to count every syllable over one in each word and add 100. Average the total number of syllables for the three samples.
4. Plot on the graph the average number of sentences per hundred words and the average number of syllables per hundred words. Most plot points fall near the heavy curved line. Perpendicular lines mark off approximate grade level areas.

Example

	Sentences per 100 words	Syllables per 100 words
100-word sample, Page 5	9.1	122
100-word sample, Page 89	8.5	140
100-word sample, Page 160	7.0	129
3	24.6	3 391
Average:	8.2	130

After plotting these averages on the graph, you will find that they fall in the 5th grade area; hence the book is about 5th grade difficulty level. If great variability is encountered either in sentence length or in the syllable count for the three selections, then randomly select several more passages and average them in before plotting.


AVERAGE NUMBER of SYLLABLES per 100 WORDS
104
112
120
128
136
144
152
160
168
AVERAGE NUMBER of SENTENCES per 100 WORDS
40.0
35.0
30.0
25.0
20.0
16.7
14.3
12.5
11.1
10.0
9.2
8.3
7.5
7.1
6.7
6.3
5.8
5.5
5.3
5.0
4.8
4.5
4.3
4.2
4.0
3.8
3.7
3.6
PP
P
1
2
3
4
5
6
7
8
9
10
11
12
APPROXIMATE GRADE LEVEL

ADDITIONAL READABILITY FORMULAS

Dale and Chall Formula

In 1948 Edgar Dale and Jeanne Chall designed a readability formula that is the second most frequently used formula after Flesch. Dale and Chall based their work on the hypothesis that: (1) a larger word list would predict better than the Dale 769 - word list used by Lorge, particularly at the upper levels of difficulty, (2) the count of personal references (human interest) as used by Flesch was unnecessary, and (3) a shorter, more efficient formula could be developed, using only a word factor and a sentence factor. The procedure for using the new formula is:

Dale and Chall

Select 100-word samples throughout the material to be rated;

Compute the average sentence length in works (x_2);

Compute the percentage of words outside the Dale list of 3000 (x_1, or Dale score);

Apply in the formula: $X_{c50} = .1579_{x_1} + .0496_{x2} + 3.6365$ (X_{c50} refers to the reading grade score of a pupil who could answer one-half the test questions on a passage correctly.)

Farr - Jenkins - Paterson Formula

The Flesch formula was further simplified with a new formula developed by James Farr, James Jenkins, and Donald Paterson. They proposed that the syllable count used by Flesch be replaced by a count of one-syllable words to reduce analysis time and eliminate the need for a knowledge of syllabication on the part of the analyst. To apply the formula, these steps are necessary:

Farr - Jenkins - Paterson

Systematically select 100-word samples from the material to be analyzed;

Determine the number of one-syllable words per 100 words (NOSW);

Determine the average sentence length in words (SL);

Apply the formula: New Reading Ease Index = 1.599 NOSW - 1.015 SL - 31.517

The new formula was validated by comparison of scores of 360 passages with Flesch formula scores for the same passages. A correlation coefficient of .93 was found. A subsequent study of larger samples yielded a correlation of .95.

Gunning Formula

In Robert Gunning's formula, Flesch's syllable count is replaced by a count of words having three or more syllables. The steps required in using this formula are:

Gunning

Take systematic samples of 100 words;

Divide number of words by number of sentences to get sentence length;

Count the number of words of three or more syllables to get percentage of hard words;

To get the Fog Index, total the two factors above and multiply by .4. (The Fog Index is the reading grade level required for understanding the material.)

From your reading answer these questions:

1. What is meant by readability?
2. Name and explain at least four readability formulas.
3. Which formula would you use if you had to make the decision as a curriculum specialist? Why? There is no right or wrong answer.

Discuss your answers to these questions with others using the learning activity.

References:

Flesch, Rudolph. The Art of Readable Writing. New York: Harper and Row, 1974.

Klare, George R. The Measurement of Readability. Ames, Iowa: Iowa State University Press, 1963. pp. 20-25.

Learning Activity 2.1-b

Read The Elements of Style by Strunk and White.

From your reading how would you answer the following:

1. What is the significance of Strunk and White in regard to readability?
2. As a curriculum developer, how might you incorporate the information in Strunk and White? Please give examples.

Get the reaction of others doing the Learning Activity.

Reference:

Strunk, William Jr. and White, E. B. The Elements of Style. New York: Macmillan Publishing, 1972.

Learning Activity 2.1-c

What is the readability level of the materials you collected in PERFORMANCE OBJECTIVE 1? Using the formula you selected in Learning Activity 2.1-a, score at least four one-hundred word passages. For best results on sample selection, you may want to reread Flesch's step 1 in his chapter on "How to Use the Readability Formula."

What were the results of your work?

What effects would your results have on your selection of materials?

Instructional Objective 2.2

The learner will assess and apply specific criteria that could be used in evaluating and selecting instructional materials.

Learning Activity 2.2-a

Using the assessment instrument developed by the Cornell Institute for Research and Development in Occupational Education, assess at least four of the items that you collected in PERFORMANCE OBJECTIVE 1. How do the instructional materials you collected meet the criteria established by the Cornell Study? What items would you select for dissemination on the basis of your assessment?

Learning Activity 2.2-b

Consult Kemp and read Part I in "Background in Audiovisual Communications."

After reading the material, what criteria might you recommend for evaluating and selecting audiovisual materials?

What effect would your conclusions have on the materials you collected in PERFORMANCE OBJECTIVE 1? (Assuming you selected some audiovisual instructional materials), What audiovisual materials would you select for dissemination on the basis of your reading?

References:

Bennett, James,and Muncrief, Martha. Instructional Materials for Occupational Education. Ithaca, NY: Cornell University Instructional Materials Services, 1975. pp. 9-17.

Kemp, Jerrold E. Planning and Producing Audiovisual Materials. 3rd ed. New York: Thomas Y. Crowell Company, 1975. Part One.

PERFORMANCE OBJECTIVE 3 •••

Describe and demonstrate techniques used in disseminating materials to vocational teachers.

Materials are selected or developed but all too often that is as far as it goes. A crucial stage in the life of instructional materials development is the dissemination phase. Nothing happens until the materials reach those people for which they are intended. The Vocational Education Curriculum Specialist is responsible for disseminating or sharing new instructional materials. The curriculum specialist has an obligation to get materials to the vocational education teacher as soon as possible after selection or development.

As with many other components of curriculum design and development, dissemination is not overlooked, it is misunderstood. If it is so important, what can go wrong? Consider these examples:

- A two year project is funded to develop some new instructional materials. A budget is estimated with printing and dissemination included. The dissemination plans include a workshop for familiarizing vocational teachers with the new materials. Printing runs over budget. What happens? You guessed it, the workshop is cut and just enough money is salvaged to mail one copy to the local vocational directors.

- It is not unheard of in some areas to mail one copy of newly developed instructional materials to the superintendent of schools. There is nothing wrong with this policy unless that is the extent of the mailing. The materials may never reach the intended personnel.

- As a project is begun, dissemination is written into the proposal. However, not until the completion of the project, is it discussed as a task to be carried out.

Dissemination may be considered to be:

1. mailings,
2. supervisor's conferences,
3. summer workshops for classroom teachers without supervisor attendance, or
4. nonexistant in isolated situations.

By themselves all of these situations are unacceptable.

Dissemination takes on new importance when one realizes that without it nothing happens. It must be planned, budgeted, and organized as an integral

part of curriculum development.

Learning Activity 3-a

Using the references, develop a definition for dissemination and describe at least five (5) ways instructional materials may be effectively disseminated for maximum utilization.

References:

Bruce, Herbert H. Jr., and Daly, J. Joseph. "Strategies for Disseminating Curriculum Support Materials." American Vocational Journal, VII October, 1973, pp. 29-31. EJ 084 007

Oxley, Vincent Edward. "Trade and Technical Instructional Materials: Their Status, Preparation, and Use." Unpublished Ed.D. Dissertation, University of Missouri, 1969. Ed 031 602

U.S. Department of Health, Education, and Welfare. National Center for Improvement of Educational Systems. Familiarization and Dissemination of Selected Vocational-Technical Curriculum and Resource Materials. A Final Report. Edited by Minnie Boggs and Barbara Luckner. Honolulu: University of Hawaii, June 1975. ED 110 853.

Learning Activity 3-b

Develop a model for disseminating the materials selected in PERFORMANCE OBJECTIVE 1. It may be necessary to again consult the references in Learning Activity 3-a.

After developing the model, discuss it with others doing this learning activity.

PERFORMANCE OBJECTIVE 4 ●●●●

Describe and demonstrate the process used in the development and preparation of educationally effective instructional materials which meet acceptable standards of production.

You have selected THE PROJECT that you were to work on throughout this module. To this point you have (1) identified sources of instructional materials, (2) identified specific criteria used in selecting instructional materials, and (3) described a variety of dissemination techniques. All of these PERFORMANCE OBJECTIVES utilize materials that have already been developed.

PERFORMANCE OBJECTIVE 4 shifts the emphasis, from simply selecting and evaluating existing materials, to the modification and development of new instructional materials. At best, only the terminology and processes can be learned from these activities. Mastery of the procedures in this PERFORMANCE OBJECTIVE can only be accomplished through actual application. The learning activities are designed to provide as much experience as possible in the time frame allowed.

By now you should have a good understanding of the "condition" of your project, i.e., the kinds and quality of instructional materials available on the subject. It is also assumed that you have met the module prerequisites and have completed the modules Developing Curriculum . . . and Organizing Instructional Strategies.

Instructional Objective 4.1

Given a basic framework and selected references, the learner will be able to modify existing materials to meet THE PROJECT objectives. Occasionally time and resources do not allow for the Vocational Education Curriculum Specialist to develop new materials. The emphasis of this Learning Activity is on the modification of existing materials to meet the needs of the students, the instructional setting, and the subject matter areas. The references given establish a step by step procedure for the modification process.

Learning Activity 4.1-a

Select one source of material from PERFORMANCE OBJECTIVE 2 and modify it according to the objectives you have set forth in THE PROJECT. Consult the references for a step by step procedure to modify the materials. You should feel free to expand on this procedure given the students, instructional

setting, and subject matter area with which you are working.

References:

Flesch, Rudolph. The Art of Readable Writing. New York: Harper and Row, 1974.

Todd, Ronald D. and Hawthorne, Richard D. "Modification of Curriculum Materials." American Vocational Journal, Vol 48 October 1973 , pp.42-44.

Instructional Objective 4.2

Given selected references, the learner will explain the implications of copyright laws in the development of instructional materials.

Learning Activity 4.2-a

Consult the references and give your definition of copyright and its implications for instructional materials development.

Answer these questions.

1. What is the publisher's responsibility concerning copyright?
2. What is the author's responsibility in regard to copyright? Discuss your reading with others doing this learning activity.
3. What are the copyright implications concerning the modification of materials?

References:

A Manual of Style. 12th ed. Chicago: The University of Chicago Press, 1969. pp. 87-103.

Ashley, Paul P. Say It Safely: Legal Limits in Publishing, Radio, and Television, 3rd ed. Seattle, WA: University of Washington Press, 1966.

"Developmental Procedures." University of Texas at Austin, Instructional Materials Center, Austin, Texas, 1974. Mimeographed.

Developmental Procedures

University of Texas at Austin, Instructional Materials Center.

It is very easy, in instructional materials development, to rely more heavily on one source than another. The danger lies in following

any single source too closely. Knowing exactly what constitutes copyright infringement has always been open to debate and loose interpretation. For that reason, research has been done on the subject, and the following procedures and guidelines are being adopted by the University of Texas, Instructional Materials Center:

Guidelines

The only person in position to know the complete details on sources of materials is the writer. For that reason, commercial publishers often require each writer to clarify that his manuscript is original, suitably acknowledged and fairly used, or used with permission. Some publishing contracts go so far as to require writers to agree to pay the cost of copyright suits. It may also be possible to sue both writer and publisher for infringement. Even when there is no legal threat, fair use should be applied. Because of the mutuality of interests in avoiding practices which are unfair, the following is to be adhered to:

1. Writers of instructional materials shall be primarily responsible for avoiding copyright difficulties.
2. Writers shall make it possible for an editor to double-check, by
   a. marking on the manuscript, in the margin, a reference to any source which has been quoted verbatim, or near-verbatim, for as much as 300 consecutive words (there shall be notations of where such material begins and ends);
   b. providing notes with the acknowledgment to tell how much quoted material, and how many pictures or illustrations, come from each source;
   c. marking each source on every picture or illustration, and noting the permission later;
   d. (if pictures or drawings have been traced), marking each tracing with a note to the artist to redraw in a different style, and noting on the tracing its original source;
   e. providing the editor with all the basic sources of materials at the time the manuscript is submitted, for use in double-checking.
3. When the writer has completed the manuscript and submits it for

editing, a memorandum should accompany the manuscript that verifies the writer has:

a. marked all pictures that come from any source other than this department, indicated the source, and secured written permission;

b. marked on any pictures or illustrations, obtained by tracing or close copying, for the artist to redraw in a different style, and noted the original source;

c. obtained written permission to use copyrighted material which is quoted verbatim for more than 300 consecutive words; properly acknowledged the same material, or marked it so that it can be acknowledged;

d. checked to see that no single source has been quoted in the entire book for a total of as much as 1,000 words without permission being obtained, and the places of use marked so that suitable acknowledgment can be given;

e. checked to see that the basic structure or outline does not follow too closely the approach used by another, copyrighted publication. (Under copyright law the feature protected may be an unique method of presentation. A problem can be guarded against by not depending on other sources for outlines.)

4. When a writer feels that a manuscript has been completed, checked, and is ready for editing, a photocopy or carbon copy shall be retained, and the original will be used for editing. The photocopy or carbon will be used by the writer to determine the extent to which the writer and editor worked to avoid unfair use of copyright infringement. It will also be useful in locating sources of factual error; determining whether the original writing was clear, accurate, imaginative, and helpful in learning, and whether the work done by an editor has improved or harmed the manuscript.

5. When the edited manuscript is returned to the writer for checking, he/she will determine if the work of the editor properly acknowledges and gives credit lines to follow the form requested

in the permission letter or correspondence.

Special Problem Areas

There are three special problem areas which you should understand:

1. U. S. Government publications which are not copyrighted may contain pictures or other material which is covered by copyright. Such material may carry a one-time, U. S. Government permit only.
2. Other copyrighted publications may have the same type of one-use only permission from the copyright holder. The copyright owner should be located and permission secured if there is doubt.
3. Where materials are not copyrighted, common law copyright laws apply, even to unpublished materials. Any author has the right to protect such material even if he/she has not applied for copyright.

I certify that this manuscript is original and complies with the guidelines and standards regarding copyright restrictions and fair use of copyrighted materials. Proper permission has been secured in writing of all quoted references, verbatim usage, and illustrations, photographs, or drawings; proper credit and acknowledgments have been given.

_____ (date)

_____ (writer's signature)

Adapted from "Developmental Procedures." University of Texas at Austin, Instructional Materials Center, Austin, Texas, 1974.

Instructional Objective 4.3

Using the information acquired in PERFORMANCE OBJECTIVES 1, 2 and 3, the learners will develop a new instructional materials package that is designed to fulfill their project objectives.

The design and preparation of new instructional materials is a systematic procedure. To understand the system and apply it successfully, the curriculum specialist must actually produce materials. Design and production of new materials will be the goal of the next six learning activities. It is hoped that the learner will continue with THE PROJECT begun in PERFORMANCE OBJECTIVE 1.

There are a variety of factors to consider in instructional materials development since the ultimate product must be clearly understood from the outset. Rudolph Flesch, in The Art of Readable Writing, comments on the appropriateness of thinking before acting. All too often, according to Flesch, we feel we must begin developing immediately without leaning back and trying to visualize the finished product. The curriculum developer should make it a practice to actually visualize the finished product before ever writing the first page or taking the first picture.

Learning Activity 4.3-a

At this stage in the module you have identified THE PROJECT, reviewed the literature, and have a basic understanding of what has been developed in the area. Now, describe what appropriate instructional materials you can develop, keeping in mind your basic objectives. After this mental exercise do the following:

1. Write a brief purpose and rationale for the instructional materials package you wish to develop.

2. Allow others doing this learning activity to critique your purpose and rationale.

Instructional Objective 4.4

Given a list of terms and a standard reference, the learner will define each term as it relates to the preparation of instructional materials.

Learning Activity 4.4-a

Consult the reference and define the terms. Discuss your definitions with others working on this learning activity.

1. Artwork
2. Bibliography
3. Binding
4. Book Paper
5. Camera-Ready Copy
6. Caps
7. Caps and Small Caps
8. Caption
9. Character
10. Cold Type
11. Collate
12. Composition
13. Copyright
14. Cover
15. Cropping
16. Cross-Referenced
17. Edition
18. Editor
19. Elite Type

20. End Matter
21. Errata
22. Flush
23. Format
24. Halftone
25. Heading (Head)
26. Indent
27. Introduction
28. Layout
29. Leaders
30. Leading
31. Margins
32. Mediation
33. Paper
34. Pasteup
35. Pica
36. Point
37. Proof
38. Proofreaders' Marks
39. Ream
40. Serif
41. Spacing
42. Spine
43. Style
44. Type Sizes
45. Type Styles
46. Typewriter Composition
47. Wraparound
48. Zip-A-Tone

Reference:

A Manual of Style. 12th ed. Chicago: The University of Chicago Press, 1969. pp. 87-103.

Instructional Objective 4.5

Given instruction in the use of instructional strategies and selected references, the learner will design new instructional materials to meet the objectives of THE PROJECT.

Learning Activity 4.5-a

The form the new instructional materials will take, and the way they will be organized, are the end products of this instructional objective. You have already been given instruction in a variety of possible instructional strategies. If THE PROJECT is a complete learning "package," it should contain the essential components of a curriculum plan given in the Introductory Module: Objectives, Learning Experiences, and Evaluation Techniques for Instructional Strategies (learning activity) are given in Module IV. In addition, a series of references are included in this Learning Activity to assist you in answering the following:

1. What is an instructional design system?
2. What are the elements of a curriculum?
3. What is the purpose of mediation in curriculum design?

Having answered the above questions, take the process one step further and answer the following:

1. To meet the project objectives set forth in PERFORMANCE OBJECTIVE 1, what form should the new instructional materials take, e.g., individualized printed packages, individualized printed packages with audiovisual aids,

discussion outlines for teacher use, programmed instruction, or independent study?

2. What elements should the new instructional materials contain?
3. What format should the project have in finished form?
4. What forms of mediation should be used?

References:

Benathy, Bela. Instructional Systems. Belmont, CA: Fearon Publishers, 1968.

Kemp, Jerrold E. Instructional Design: A Plan for Unit and Course Development. Belmont, CA: Fearon Publishers, 1971.

Mager, Robert F., and Beach, Kenneth M., Jr. Developing Vocational Instruction. Belmont, CA: Fearon Publishers, 1967.

Taba, Hilda. Curriculum Development: Theory and Practice. New York: Harcourt, Brace, and World Inc., 1962.

Tyler, Ralph. Basic Principles of Curriculum and Instruction. Chicago: The University of Chicago Press, 1949.

Instructional Objective 4.6

Given selected reference materials and the product of Instructional Objective 4.5, the learner will be able to explain and demonstrate the processes involved in developing effective written materials.

The culmination of curriculum planning is the writing of all or part of the curriculum materials. All materials require some type of written communication, e.g., instruction for games, a script for a slide-tape presentation, or an entire individualized instruction package. The importance of writing clearly and distinctly cannot be overlooked.

Just as important as the writing process is the editing. All materials, printed or media, must go through a complete editorial process. The process will vary from place to place, but a system of checks will be incorporated

into all systems. Two references have been given for you to examine; these can be supplemented with literally thousands of other references on the editing process. Choose a system that meets the needs of your particular situation, but keep in mind these fundamental rules:

1. The writer should never do his/her own substantive editing.
2. The writer should be consulted concerning substantive changes.
3. The editorial process should include copy and substantive editing.
4. Always allow adequate time to complete the entire editing process.

ALLOWING FOR EDITORIAL TIME SHOULD BE PART OF THE ORIGINAL PLANNING PROCESS.

Good writing and editing will make the difference between effective, usable, instructional materials and those unable to meet the intended objectives.

Learning Activity 4.6-a

Using the instructional design plan and the references, complete the preparation of the instructional materials to meet the objectives for THE PROJECT. After completing the preparation of the materials, put them through an editing process. Select at least two editors, one with knowledge of the subject matter. At the completion of this activity, answer these questions:

1. What is the reading level of all written material in the newly developed instructional materials?
2. Describe the editing process used. Did this process improve the reading level? Would further editing, copy or substantive, be of further value?
3. What major changes resulted from the editing process?
4. Was most of the editing substantive or copy editing? What does this indicate to you?

5. What was your reaction to the editing of your materials? If you were or had been working with a curriculum development team what might have been their reaction to the editing process?

Discuss these questions and your answers with others doing this learning activity.

References:

A Manual of Style. 12th ed. Chicago: The University of Chicago Press, 1969.

Klare, George R. The Measurement of Readability. Ames, IA: Iowa State University Press, 1963. pp. 20-25.

"Developmental Procedures." University of Texas at Austin, Instructional Materials Center, Austin, Texas, 1974. Mimeographed.

Developmental Procedures

University of Texas at Austin, Instructional Materials Center

EDITORIAL PROCESS

When the instructional materials specialist has completed the assignment and has determined that it is ready for editing, the material will go through these processes:

1. A review will be made of these key items:
   a. routine check of contents, organization, and suitability for learning
   b. ease of learning, checking objectives and contents with questions, tests, and illustrations
   c. factual accuracy (where information may be questionable or incredible)
   d. copyright and fair use of material (checking footnotes and sources of information to see that there is no violation of copyright restrictions)

2. Substantive editing checks the contents completely for grammar, syntax, spelling, parallel structure, form, and makes certain that the material is correct to achieve what the writer intended. At this point, the readability analysis is made of the material. With this analysis, the editor reviews the material with writer, and minor changes in style and key words may be necessary to get the correct reading level.
3. Material is given to the writer for final review and consideration of notes and suggestions made by a review committee.
4. Manuscripts are sent to the printer for necessary publishing and production services. The printer is authorized to do mechanical or copy editing, typesetting, art, and graphic design. In the copy editing process, the editor is marking copy for typesetting, and deciding how the copy and illustrations will fit on the page. In this process, the editors are double-checking the copy to catch any inconsistencies that have been overlooked. As the copy editors progress through the manuscript, they are authorized to call the writer and ask questions about anything that may not be apparent in the manuscript.

NOTE: It is the policy of The University of Texas, Instructional Materials Center, that rewrite, other than simple rewording of a sentence or two, should be done by the writer rather than the copy editor.* The reason is that rewrite at this stage is too costly and involves too many decisions to be left to the copy editor. It also consumes too much time.

*The writer may authorize or okay minor changes in copy that do not change the intent or meaning of the contents. It is the writer's responsibility at this point to assume final authority for technical content accuracy. Mechanical editors may question any material or format that is not clear, or where clarification is needed as to the writer's intent.

Adapted from "Developmental Procedures." University of Texas at Austin, Instructional Materials Center, Austin, Texas, 1974.

Instructional Objective 4.7

Given the selected reference and the product of Instructional Objective 4.6, the learner will design the mediation necessary to fulfill the instructional design plan and THE PROJECT objectives.

Learning Activity 4.7-a

Read the reference and design the appropriate mediation for the new instructional materials you developed in Learning Activity 4.6-a, e.g., write the script for a slide-tape production, design the art masters for transparencies, or write a script for a video tape recording. Samples of these designs can be found in the references.

1. What was your logic for selecting one particular form of mediation over another?
2. What developmental procedure did you follow in preparing the materials?
3. How do you propose to evaluate the product?

Reference:

Kemp, Jerrold E. Planning and Producing Audiovisual Materials. 3rd ed. New York: Thomas Y. Crowell Co., 1975.

Instructional Objective 4.8

Given selected references and the products of Instructional Objective 4.7, the learner will design and develop a "dummy" of the packaging layout proposed for the new instructional materials.

Learning Activity 4.8-a

Consult the references and explain the term "dummy package". Be as complete as possible with your dummy package. Have all materials exactly as you want them, i.e., in the exact order, pages numbered, cover design with color and artwork, mediation with artwork packaged in the appropriate manner, instruction for mediation, and binding explained and used if possible. Your outline should be in keeping with your project objectives and those ideas formulated in Instructional Objective 3.2

References:

A Manual of Style. 12th ed. Chicago: The University of Chicago Press, 1967.

Lee, Marshall. Bookmaking: The Illustrated Guide to Design and Production. New York: R. R. Bowker Company, 1965.

Instructional Objective 4.9

Given the products of Instructional Objective 4.8 and the information in PERFORMANCE OBJECTIVE 3, the learner will develop a dissemination plan for the newly developed instructional materials.

Learning Activity 4.9-a

Now that the new instructional materials are in their final form, use the information in PERFORMANCE OBJECTIVE 3 to design a dissemination model that will give maximum exposure to the product.

Provide the following information:

1. A complete explanation of all dissemination plans.
2. A model for dissemination showing the proposed time lines. With your work complete, what would keep your newly developed instructional materials from reaching the intended audience? What could you do to prevent that from happening?

PERFORMANCE OBJECTIVE 5 ●●●●●

Evaluate a completed project designed for instruction in vocational education.

Learning Activity 5-a

Exchange your completed project with an individual who has completed PERFORMANCE OBJECTIVE 4. Evaluate the projects independently, using the criteria in PERFORMANCE OBJECTIVE 3.

What were the results of the evaluation?

From the evaluation your project received, how could you improve the project?

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Strunk, William, Jr., and White, E. B. The Elements of Style. New York: Macmillan Publishing Co., 1972.

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